Framework For Performance Management, ICT-Based Digitalization in A Higher Education Institution

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Abstract

By improving teaching and learning, research, and governance, digital technology has altered the educational landscape in academic institutions. Adequate infrastructure, improved internet access, modern digital tools, a secure platform, and professionals with digital competency are all critically needed. Higher education institutions in India are clearly visible from the growing usage of ICT, cloud computing, AI, robotics, and virtual reality in daily operations, which improves competencies and aids in skill alignment with industry-based knowledge. Teaching in a regular classroom is becoming obsolete. The way that education is delivered has changed dramatically since the advent of technology. It provides the freedom for students to access learning at any time or location they want. The lines that were once drawn by understudies and educators being available in a similar spot simultaneously have likewise become more foggy because of education turning out to be more computerized. In the past ten years, internet and remote learning have grown in popularity in India. With the majority of the country now having access to digital technology, online learning courses are becoming more and more popular. Besides, understudy evaluation through digitalization technology is currently a chance on the grounds that to the improvement of learning management systems (LMS). Outside of the classroom, students can socialize with their peers. The pupils' soft skills have also been guided by the peer-centered learning component. LMS would enhance student evaluation and the teaching process.

Keywords: Framework For Performance Management, ICT-Based Digitalization, Higher Education Institution, learning management systems, Massive Open Online Courses, Information and Communication Technology.

1.   INTRODUCTION

Because digital technology helps teachers with computer-assisted learning, education quality has increased. In order to support their creative and cooperative learning, the teacher assists students in researching a variety of sources on pertinent topics. Institutions have begun to introduce need-based theoretical and practical lessons in the form of numerous courses at different levels. The use of smart classrooms for instruction has become the new standard in education. The gross enrollment ratio has improved as a result of distant learning in a variety of courses at different levels. All levels of online learning settings are provided by the Massive Open Online Courses (MOOCs). The selection process was made simpler and the financial load was lessened for students with a single, centralized online admission exam. The digital skills and technological knowledge will aid students in finding employment. To prevent future difficulties, all kids need to be computer literate. Digital innovation adoption is now a must for all institutions. It takes a shift in leadership and culture for an institution to digitalize itself systematically in terms of data management. For the purpose of controlling data accessibility, integrity, disaster recovery, quality, and efficient backup, a standard data management system must be adopted. Digitalization will be the best choice if sensitive institutional data exists.
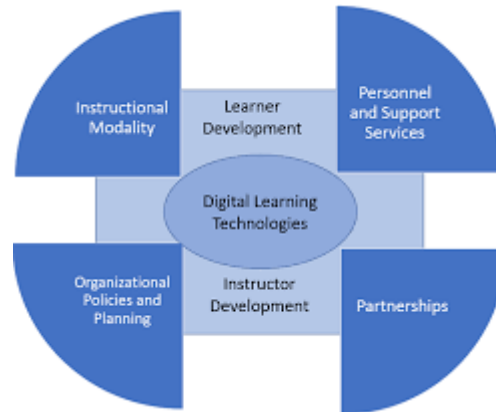
Figure 1: Digital learning technologies

An unprecedented degree of accountability and openness in the institution's financial administration has resulted from digitization. The development of virtual colleges, savvy colleges, advanced colleges, e-colleges, deft colleges, college 4.0, and so forth has been prodded by the new digitalization of education. During the COVID-19 pandemic in India, almost 287 million children's education up to the secondary level was impacted. In higher education, on the other hand, online teaching and learning resources have been used to record the complete semesters from 2019–2020 until the current session. Higher education institutions were also urged to go digital by the Digital India Program.

2.   LITERATURE REVIEW

Smith and Johnson (2020) The integration of information and communication technology (ICT) is emphasized in their paradigm as a means of streamlining procedures, enhancing decision-making, and eventually boosting institutional performance. Institutions may gather, process, and use data more effectively by utilizing digital tools, which will help them make better decisions and achieve better performance results.

Brown and Patel (2019) They illustrate the difficulties of incorporating technology into current institutional structures and cultures by using a case study methodology. Implementation difficulties include things like lack of technology infrastructure, privacy concerns about data, and unwillingness to change. Brown and Patel highlight the potential advantages of ICT-based systems in improving accountability, transparency, and performance evaluation in higher education institutions despite these obstacles.

Johnson and Jackson (2018) examine the advantages and disadvantages of digitalization in performance management. They highlight how digital technologies have the power to revolutionize processes for continuous improvement, data-driven decision-making, and real-time monitoring. They also draw attention to the necessity of thorough planning and stakeholder involvement in order to get beyond opposition and guarantee successful adoption. To optimize the advantages of digitalization in performance management for higher education, Johnson and Jackson support a comprehensive strategy that takes organizational and technological aspects into account.

Chen and Wang (2017) A thorough framework for ICT-enabled performance management in higher education institutions is presented. The integration of ICT tools and systems to support data-driven decision-making processes is emphasized in their framework. Institutions can more effectively gather, evaluate, and understand performance data by utilizing ICT, which improves resource allocation and strategic planning. Chen and Wang emphasize how crucial it is to match organizational goals and objectives with ICT-enabled performance management in order to guarantee its efficacy.

Rodriguez and Garcia (2016) with the goal of improving performance management procedures. Their methodology, which focuses on organizational culture, leadership, and infrastructure, highlights the necessity of taking a strategic approach to digitization. According to Rodriguez and Garcia, digital transformation is a comprehensive process that includes adjustments to organizational structures and procedures rather than only being seen as a technology advancement. Institutions can effectively utilize ICT to optimize performance management procedures by implementing a methodical framework.

Liu and Li (2015) provide information about how performance management systems are designed in higher education, with an emphasis on ICT integration. The framework places significant emphasis on the alignment of performance management procedures with the aims and objectives of the institution. Institutions can optimize performance monitoring, evaluation, and feedback processes through the utilization of ICT integration. Liu and Li emphasize the significance of designing systems with the needs of users in mind, making sure that ICT-enabled performance management tools are simple to use and available to all parties involved.

Wang and Zhang (2014) In order to provide an ICT-based performance management framework that is specific to the requirements of higher education institutions, offered a case study approach. The authors developed a thorough framework that stresses the alignment of ICT solutions with organizational objectives, performance measures, and stakeholder expectations through empirical study and stakeholder interaction. Their research made clear how crucial it is to use ICT technologies to speed up the processes of gathering, analyzing, and reporting data in order to improve academic institutions' accountability, transparency, and ability to make decisions.

Garcia and Martinez (2013) In order to facilitate performance monitoring, evaluation, and improvement initiatives, presented a thorough framework for ICT-driven performance management in higher education. They placed special emphasis on the integration of ICT systems, processes, and infrastructure. The authors emphasized the necessity for an all-encompassing strategy for ICT adoption that takes into account organizational, technological, and human variables. They did this by drawing on insights from information systems theory and organizational behavior. To optimize the advantages of ICT-enabled performance management methods, their methodology promotes the strategic alignment of ICT investments with institutional goals, resource allocation, and governance structures.

Chen and Huang (2012) investigated how ICT might improve performance management procedures in higher education institutions. The authors conducted a qualitative analysis of case studies and found that organizational culture, technology infrastructure, stakeholder involvement, leadership support, and organizational culture all play important roles in the successful deployment of ICT-enabled performance management systems. Their research demonstrated how ICT may revolutionize academic departments and administrative divisions by promoting collaboration, accelerating data-driven decision-making, and improving accountability.

Wang and Li (2011) An integrated paradigm for ICT-enabled performance management in higher education was put up , who emphasized the synergistic integration of organizational, technological, and human resources. The authors presented a structured approach to ICT adoption that included system design, implementation planning, capacity building, and continuous improvement. This approach drew on concepts from organizational theory and information management. Their paradigm emphasizes that, in order to maximize the value proposition of ICT-enabled performance management initiatives, ICT investments must be aligned with institutional agendas, performance indicators, and stakeholder needs.

3.   RESEARCH METHODOLOGY

A questionnaire has been used as an instrument in the primary research. The research sample included fifty instructors from the city of Mumbai. The purpose of the questions was to help students grasp the importance of digitalization in education. The researcher's understanding of the importance of technology in education and how it affects teaching and student assessment was aided by brief conversations with knowledgeable academicians and business leaders.

Research programming, diaries, e-learning research articles, and a few propositions generally helped the scientist in understanding more about the meaning of digitization and what it means for educating and understudy assessment.

The measurable program SPSS 22 was utilized to dissect the information that was assembled through the poll. To test the exploration speculation, the mean scores were exposed to different measurable examinations using a scope of factual techniques. The exploration that was done yielded a Cronbach alpha score of 0.896.

Support for Test Size Eventually, the measurable formula was utilized to decide the example size.

$n = \left[\frac{Z/_2\sigma}{E}\right]$ where Z = 1.96 at a 95% confidence level and N = the number of samples.

E = Margin of Error, σ = Standard Deviation

Table 1: Digitalization's Effects on Education and Student Assessment

Questionnaires	Cronbach's Alpha Score
	Mumbai
Faculty's perception on digitalization in higher education	.896

The expression "learning management framework" (LMS) alludes to a piece of programming that is used by educational institutions to convey their courses. This product is used by both scholastic institutions and preparing organizations. As well as being observed by the two resources, the learning management framework can likewise be overseen by understudy control in any circumstance where the workforce feels it important to do as such. The personnel utilizes the learning management framework to furnish understudies with educational assets, as well as to acknowledge appraisals and return grades to understudies. Through the use of the learning management framework, the understudies can get learning assets from the workforce, participate in discussion with their schoolmates, take tests or other learning appraisals that have been made by the personnel, transfer their tasks, and accept their grades. As a delineation, staff approach different assets inside the learning management framework to encourage connection between understudies using forums and gathering conversations. The employees assume the job of mediator and direct the discussion in the proper heading. Both conventional study hall guidance and far off or online learning courses are upheld by the learning management framework, which is likewise used by educational and preparing institutions in equivalent measure. Learning management systems have become progressively famous lately, which has prompted an expansion in the quantity of schools that have taken on a LMS of some sort. Learning management systems have been carried out in schools to furnish understudies with exercises, especially those relating to science, as well as a device for understudies to use to finish their schoolwork tasks. Also, it has diminished how much opposition that understudies have towards the usage of the learning management framework during graduate and post-graduate courses. This has been achieved by starting to get ready understudies to finish most of their tasks online. In any case, its maximum capacity has not yet been investigated, and it is presently being used as a supplemental device related to the instructing approaches that are as of now set up.

As of late, online learning, otherwise called e-learning, has in practically no time become one of the most well known forms of education in India. E-learning is a form of education that consolidates the use of an online communication framework for the reason for working with the exchange of information and preparing. The guidance is brought out completely through the use of computerized technology, either straightforwardly through the web or through uncommonly evolved programming that is made accessible to the employees of the foundation as well as the understudies who sign up for the program. As of the present moment, various educational institutions from one side of the planet to the other are directing tests with different forms of e-learning and have gained ground toward the objective of changing a critical number of directions onto an e-learning platform.

It is favorable for educational institutions since they can collaborate with understudies from everywhere the world and don't need to make interests in laying out a few grounds on various mainlands. Moreover, it is favorable to understudies and society overall since they don't need to bear the expenses related with movement, costs connected with facilities, and other everyday costs that are related with living in a foreign country. Thus, e-learning turns into an engaging other option, especially for experts in their professions who don't need to migrate their place of home and who can all the more effectively balance their work and study liabilities. Then again, the expense of delivering an online learning course is somewhat critical, and thus, it is important to plan and complete the interaction cautiously. With regards to the planning of an e-learning course module, the course creators may likewise require extra preparation. Understudies are expected to have a specific degree of specialized information in regards to computerized systems and web use to take part in e-learning courses in light of the fact that these courses are completely reliant upon the learning management framework. E-learning technology can likewise be used as an enhancement to the ordinary technique for guidance that happens in a homeroom setting.

Furthermore, learning management systems (LMS) have been used to work with the making of a virtual study hall for far off learning. This permits understudies to take part in classes from a distant area, like their homes or some other off-site area. Right now, educational institutions all over the world are likewise exploring different avenues regarding blended mode instructing. Blended mode educating is a showing strategy wherein an employee at the same time trains understudies who are genuinely present in the homeroom as well as understudies who are signed in through PC programming from a distant area. Understudies somewhere far off mode can see the staff using a web camera. Also, the staff utilizes a functioning board or board, and the understudies can see anything that the personnel checks or composes on the dynamic board. The two understudies who go to

classes face to face and the people who go to classes remotely can speak with each other, and they are additionally ready to participate in homeroom conversations. Notwithstanding, the workforce has the choice of putting the two gatherings of understudies in various companions and relegating different assignments to every one of them, or they can decide to have each of the understudies fall under a similar partner. The two gatherings of understudies would utilize the learning management framework. Because of the way that the blended mode showing design is generally new in the educational area, extra review and examinations are expected to decide its value and how much space it demands inside the educational area. At the current day, there are an assortment of learning management systems that can be bought available. The ones that are used the most often incorporate Board, Moodle, and WebCT. The employees approach various instruments that are available to them on account of these learning management systems.

These instruments comprise of tests, forum discusses, studies, glossaries, online studios, talks, and forum messages. Furthermore, there is a possibility for understudies to post their tasks and acquire their scores from different understudies. Regardless of the way that learning management systems were at first evolved fully intent on bringing down the carbon impression of the educational area, its utility has been known to stretch out past the extent of that specific goal. Understudies are likewise reminded by the learning management framework about the dates on which they are supposed to hand in their tasks and evaluations. Thus, the authoritative consumptions that are normally exhausted by educational institutions to provide food for re-siting or late accommodation of appraisals have been diminished. It additionally ensures that all gatherings that utilization the framework stick to the time spans that have been laid out. Furthermore, the learning management framework makes it workable for understudies to speak with each other even after the conventional showing hours have finished. Besides, it adds to the formation of an understudy and graduated class local area that is all the more firmly connected. With regards to the clinical field, this is of most extreme importance on the grounds that the contacts that are laid out all through the scholastic period simplify it to lay out a clinical practice and invigorate cross-references among the whole gathering of understudies. All in all, it is feasible to affirm that learning management systems are the educational course that India will take from here on out. Extra improvements that are made to build the abilities of learning management systems will be worthwhile to the education business and will aid the advancement of e-learning courses from now on. Furthermore, Indian educational institutions can use the administrations of employees from noticeable colleges situated in different nations by using learning management systems.

Using this asset, understudies in India will have the chance to partake in educational open doors at a worldwide level without bearing the huge monetary weights related with going abroad to do as such. Furthermore, it allows the educational institution the opportunity to utilize the administrations of a more noteworthy number of abroad employees without paying the cost of flying them in to show the subject. The outcome is that a more maintainable plan can be used by an enormous number of individuals. There is still far to go until the maximum capacity of online education isn't totally perceived and used. Directing extra concentrate in this field is essential.

4.   RESULT

H$_{01}$: There is no impact of Digital Technology on teaching Process

H$_{11}$: There is a significant impact of Digital Technology on Teaching Process

Interpretation: Since the objective of the effect of computerized technology on the showing system is to all the more likely understand the mindfulness, utilization, and understanding of computerized technology, various segment factors have been tried, and the discoveries are deciphered utilizing measurable tables.

Table 2: Chi-Square Tests

	Value	df	Asymp. Sig (2-sided)
Pearson chin-square	9.975[a]	7	.176
Likelihood ratio	11.461	7	.108
Linear-by-linear association	.323	2	.575
N of valid cases	325		

The registered worth is significantly more modest than the even worth at p value.05. This is shown by the Chi-Square table. And that demonstrates that computerized technology impacts the showing system (age wise). Subsequently, the elective speculation is acknowledged and the invalid speculation is dismissed.

H02: Digital technology do not Support the Student's Assessment.

H12: Digital technology Support the Student's Assessment.

The speculation has been created considering the concentrate's subsequent objective, which is to examine what advanced innovations mean for understudies' ability for learning. The speculation was examined utilizing multivariate ANOVA, and the outcomes showed that advanced technology upholds understudy evaluations on the grounds that the registered worth was not exactly the classified F table worth at the p (.05) level. Thus, the elective speculation is acknowledged and the invalid speculation is dismissed.

Table 3: Multivariate tests[a]

Effect		value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's trace	.578	317.406[b]	6.000	1160.000	.000
	Wilks' Lambda	.424	317.406[b]	6.000	1160.000	.000
	Hoteling's trace	1.366	317.406[b]	6.000	1160.000	.000
	Roy's Largest Root	1.366	317.406[b]	6.000	1160.000	.000
Level of present study_1	Pillai's trace	.066	17.193[b]	6.000	1160.000	.000
	Wilks' Lambda	.936	17.193[b]	6.000	1160.000	.000
	Hoteling's trace	.071	17.193[b]	6.000	1160.000	.000
	Roy's Largest Root	.071	17.193[b]	6.000	1160.000	.000
V17	Pillai's trace	.065	5.916	16.000	4594.000	.000
	Wilks' Lambda	.940	5.946	16.000	4299.991	.000
	Hoteling's trace	.065	5.969	16.000	4584.000	.000
	Roy's Largest Root	.045	9.960[c]	6.000	1262.000	.000

Table 4: Box's test of equality of covariance matrices[a]

Box's test of equality of covariance matrices[a]	
Box's M	678.369
F	7.294
Df1	86
Df2	3199.539
Sig.	.000
Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.	

Interpretation: Box's Trial of Equity of Covariance Grids is justified since the importance esteem of.000 is not exactly the p-esteem of.05. It invalidates the invalid speculation and supports the elective theory that advanced technology improves understudy evaluation.

5. CONCLUSION

According to the research, most faculties believe that teaching is improved by the idea of digitization, which greatly promotes teaching. Rather of using board and chalk pieces as in the past, there is a more practical approach. With the use of such technology, teaching can only be improved, and student excitement is also expected to rise. Teachers perceive that the use of technology in the classroom interrupts their current teaching style, but it also makes administrative tasks like attendance, evaluations, class discussions, and activities easier for them. They acknowledge that we are in a transitional period, but they also concur that continuing the digitization of education is essential. But according to some knowledgeable academics with whom I have spoken, digitization would greatly aid research and result in more open lines of communication between mentors and students while they are conducting their studies. Additionally, it would boost international research efforts and enhance the Indian system by raising its level of competition and broadening its perspectives.

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